

REMARKS/ARGUMENTS

Claims 1-6 and 8-42 remain pending in the present application. Claims 12, 15-19 and 23 have been allowed. Claims 8-11, 13, 14, 26, 27, 29, 30, 32 and 39 were indicated in the October 23, 2003 Office Action as being allowable if rewritten in independent form including the limitations of their base claim and any intervening claims. Claim 7 was cancelled in a previous amendment, and its subject matter was incorporated into amended claim 1. Claims 1-6, 20-22, 24, 25, 28, 31, 33-38 and 40-42 were rejected for anticipation and/or obviousness in view of Krumpelt et al. U.S. Patent No. 6,110,861, either alone or in combination with Narayanan et al. U.S. Patent No. 5,945,231 or Wilkinson et al. U.S. Patent No. 5,672,439.

Telephone Interview of January 14, 2004

Applicants appreciated the opportunity afforded to the applicants' undersigned attorney and to the applicants' assignee's in-house patent agent, David Wainwright (Registration No. 39,412) of Ballard Power Systems Inc., Burnaby, BC, Canada, to jointly participate in a telephone interview with Examiner Wills on January 14, 2004. During the interview, the non-finality of the October 23, 2003 Office Action was confirmed, in view of a possible discrepancy with the USPTO's PAIRS system indication that the Office Action was made final. The applicants' representatives then explained the differences between, on the one hand, the applicants' claimed voltage reversal tolerant fuel cell anode with a two-component catalyst and, on the other hand, a catalyzed fuel processor of the type described in Krumpelt. In addition, possible amendments were discussed in connection with the definition of the second catalyst in the applicants claimed fuel cell anode

(claims 1-33) and method of making a voltage reversal tolerant solid polymer electrolyte fuel cell (claims 34-42).

The Claim Amendments Presented Herein

Independent claims 1 and 34 have each been amended, in accordance with the Examiner's suggestions during the telephone interview, to more explicitly define the applicants' second catalyst composition as being *capable of* evolving oxygen from water and as comprising a specified metal oxide that *imparts voltage reversal tolerance* to the fuel cell. As explained in more detail below, none of the references of record, either alone or in combination, disclose or suggest the applicants' claimed anode structure in which a first catalyst oxidizes a fuel and a second catalyst composition comprising a metal oxide evolves oxygen from water and imparts voltage reversal tolerance to the fuel cell.

Anticipation and Obviousness Rejections Based upon Krumpelt

As discussed during the January 14, 2004 telephone interview, Krumpelt cannot anticipate or render obvious either of independent claims 1 and 34 because Krumpelt's "bifunctional" catalyst, which partially oxidizes hydrocarbon fuels to hydrogen in a *fuel processor*, is structurally and functionally distinguished from the applicants' claimed *anode* structure, in which a first catalyst composition oxidizes a fuel and a second catalyst composition comprising a metal oxide is capable of evolving oxygen from water. The presence of the additional metal oxide catalyst in the applicants' claimed anode structure imparts voltage reversal tolerance to the fuel cell to an extent not achieved with conventional anode structures in which a single electrocatalyst simply oxidizes the fuel.

As to the Narayanan patent, applicants submit that Narayanan's platinum/ruthenium *alloy* is a *single* catalyst composition, and is not a two-component catalyst system as defined in the applicants' claims.

Finally, the Wilkinson patent describes an electrode for use in direct methanol fed solid polymer electrolyte fuel cells in which catalyst particles are distributed throughout the thickness of the electrode such that the liquid methanol fuel fed to the electrode is substantially completely reacted upon contacting the electrode surface facing the polymer electrolyte. Wilkinson nowhere discloses or suggests the two-component catalyst system defined in the applicants' present claims.

Since none of the references of record, either alone or in combination, disclose or suggest an anode structure in which a first catalyst composition oxidizes a fuel and a second catalyst composition comprising a metal oxide evolves oxygen from water and imparts voltage reversal tolerance to the fuel cell, those references cannot anticipate or render obvious applicants' independent claims 1 and 34, or any of claims 2-6, 8-33 and 35-42 dependent thereon.

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In view of the foregoing remarks, applicants submit that claims 1-6, 20-22, 24, 25, 28, 31, 33-38 and 40-42 are allowable, in addition to claims 12, 15-19 and 23 have been already allowed and claims 8-11, 13, 14, 26, 27, 29, 30, 32 and 39 indicated as being allowable if rewritten in independent form. The Examiner is invited to telephone the applicants' undersigned attorney at (312) 775-8123 if any unresolved matters remain.

A Petition for Two-Month Extension of Time accompanies this Amendment and Request for Reconsideration, as well as the requisite fee for extension within the second month. Please charge any additional fees, and credit any overpayment, incurred in connection with this submission to Deposit Account No. 13-0017.

Respectfully submitted,



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